WHAT IS CLAIMED IS:

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- 1. An optical element comprising a light-shielding member comprising a metal at the periphery of an effective area of the optical element.
- 2. An optical element according to Claim 1, wherein the light-shielding member is composed of a metal subjected to an anti reflection treatment.
- 3. An optical element according to Claim 2, wherein the light-shielding member is composed of one of a low-reflection chromium layer, and a multilayer film of a chromium oxide layer and a metallic chromium layer.
- 4. An optical element provided with a light-shielding member comprising a ceramic material at the periphery of an effective area of the optical element.
- 5. An optical element according to Claim 4, wherein the ceramic material is composed of at least one of TiC, TiN, ZrC, ZrN, HfC and HfN.
- 6. An optical element according to Claim 4, wherein the ceramic material is a material that absorbs the wavelength

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7. An optical element according to one of Claims 1 to 6, wherein an alignment mark is provided on the light-shielding member.

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- 8. An optical element provided with a light-shielding member composed of a light-shielding ink and an alignment mark at the periphery of the optical element.
- 9. An optical element according to Claim 7 or Claim 8, wherein the light-shielding member and alignment mark are provided by printing.
- 10. An optical member according to Claim 9, wherein the portions where the light-shielding ink does not protrude.
- 11. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking UV-laser light with a wavelength of 250 nm or less and generating no undesirable substances when irradicted by laser light.
 - 12. An element according to Claim 11, wherein the light-shielding area is composed of at least one of a metal

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and a ceramic.

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- 13. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking UV light and generating no undestrable substances due to irradiation by the UV light.
- 14. An element according to Claim 13, wherein the light-shielding area is composed of at least one of a metal and a ceramic.

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- 15. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking radiation energy and generating no undesirable substances when irradiated.
- 16. An element according to Claim 15, wherein the light-shielding area comprises at least one of a metal and a ceramic.
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- 17. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking UV laser light with a wavelength of 250 nm or less and being resistant to the

laser light.

- 18. An element according to Claim 17, wherein the light-shielding area comprises at least one of a metal and a ceramic.
- 19. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking UV light and being resistant to the UV light.
- 20. An element according to Claim 19, wherein the light-shielding area comprises at least one of a metal and a ceramic.
- 21. An optical element provided with an effective area and a light-shielding area in the periphery of the effective area, the light-shielding area blocking radiation energy and being resistant to the radiation energy.
- 22. An element according to Claim 21, wherein the light-shielding area comprises at least one of a metal and a ceramic.

23. An optical element provided with a light-shielding

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member comprising an inorganic material at the periphery of an optical element.

- 24. An optical element according to Claim 23, wherein the material comprises a thin film ceramic.
- 25. An optical element according to Claim 24, wherein the material comprises at least one of TiC, TiN, ZrC, ZrN, HfC and HfN.
- 26. An optical element according to Claim 23, wherein the material comprises metallic materials.
- 27. An optical element according to Claim 26, wherein the material comprises a metal subjected to reflection preventive treatment.
- 28. An optical element according to Claim 26 or 27, wherein the material comprises at least one of chromium, aluminum, molybdenum, tantalum and tungsten.
- 29. An optical element according to Claims 26 to 28, wherein the reflection preventive treatment comprises a laminated structure of a metal oxide layer on the light-shielding member.

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- 30. An optical element according to Claims 26 to 28, wherein the metal oxide layer comprises at least one of silicon oxide and aluminum oxide.
- 31. An optical element according to Claims 23, wherein the material comprises a compound of a metal and silicon.
- 32. An optical element according to Claims 31, wherein the material comprises a compound of at least one of molybdenum and tungsten, and silicon.
- 33. An optical element according to Claims 23, wherein the material comprises a semiconductor material.
- 34. An optical element according to Claims 33, wherein the material comprises silicon,
- 35. An optical element according to Claims 23, wherein the material of the light-shielding member comprises a metal oxide.
- 36. An optical element according to Claims 35, wherein the material of the light-shielding member comprises titanium oxide.

37. An element according to any of Claim 1 to 35, wherein a diffractive surface is formed in said effective area.

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- 38. An element according to any of Claim 1 to 35, wherein said element is a diffractive optical element.
- 39. An optical system having the optical element according to one of Claims 1 to 35.
- 40. An illumination apparatus illuminating a face utilizing the optical system containing the optical element according to any one of Claim 1 to Claim 35.
- 41. A projection exposure apparatus for illuminating a pattern on a first subject by taking advantage of a light flux via the optical system containing the optical element according to one of Claims 1 to 35, thereby projecting and exposing the pattern on the first subject on a substrate face with the projection optical system.

A method for manufacturing a device, wherein the pattern on the mask is illuminated by taking advantage of the light flux via the optical system containing the optical

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element according to one of Claims 1 to 35, the device being manufactured via a development step after exposing the wafer face with the pattern.

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